

THE
MONTHLY REPOSITORY,
AND LIBRARY OF
Entertaining Knowledge.

VOL. IV.

JANUARY, 1831.

No. 8.

SION.

SION is the chief place of the Haut Valais, in the great valley of the Rhone, in the route of the Simplon, from Geneva to Milan. It is situated on the right bank of the Rhone, in a beautiful plain. At the commencement of the valley, the road is bordered by sterile rocks and mountains, but the face of the country soon changes, displaying pasturages, vineyards, villages, rivers, picturesque ruins of ancient castles, and distant Alps, blanched with eternal snow.

The town was anciently Sedunum, and in German, Sitten, from its being partly on the river Sitten, as well as on the Rhone. When the Romans penetrated, for the first time, into Helvetia, it would appear that Sion was already a considerable place, since they assigned its name to the inhabitants of the whole valley. These people gave battle to the Romans near Octodurum; but, being defeated by Galba, they were obliged to submit to the Roman yoke. The conquerers erected strong castles at Sion, from which they were driven by the Burgundians, in the fifth century.

Sion is one of the most ancient episcopal sees in Switzerland. During the second half of the fourteenth century, this place was several times besieged, taken, and reduced to ashes. It had to sustain two more sieges in the following century. In 1788 it was almost entirely consumed by a tremendous conflagration; and in 1799, taken by assault by the French. The town stands on the declivity of three hills, each crowned by a castle, from which the eye commands magnificent views of the surrounding country.

In Sion, the traveller will see a race of afflicted creatures, called *cretins*, deaf, dumb, stupid, and almost insensible to blows; they have *goitres* (large swellings from the throat) hanging down to their waists; and they display no reason, but great activity in regard to their corporeal wants. The cause of *goitre* has not yet been satisfactorily explained—it has been attributed to drinking dissolved ice and snow, but this is not well supported.

CALENDAR OF NATURE.

JANUARY.

THE solar year commences in the very depth of winter. December may be very justly styled the gloomiest, January the severest, and February the most cheerless month of the year. In December, the days become shorter and shorter; a dense mass of vapour floats above us, wrapping the world in a constant and depressing gloom; and

"Murky night soon follows hazy noon."

In January, this mantle of brunal sadness somewhat dissipates, as if a new year had infused new hope and vigor into the earth; light is not only more plentifully diffused, but we soon perceive its longer daily abode with us; yet, in the words of the common adage,

"As the day lengthens,
The cold strengthens."

This is the month of abundant snows, and all the intensity of frost. Yet winter, even in its severest forms, brings so many scenes and circumstances with it to interest the heart of the lover of nature and of his fellow creatures, that it never ceases to be an object of delightful observation; and monotonous as it is frequently called, the very variety of the weather itself, presents an almost endless source of novelty and beauty.

There is, first, what is called a GREAT STORM. Frost, keen, biting frost, is in the ground; and in the air a bitter scythe-edged, perforating wind, from the north; or, what is generally worse, the northeast sweeps the de-

ascending snow along, whirling it from the open fields, and driving it against whatever opposes its course. People, who are obliged to be passing to and fro, muffle up their faces, and bow their heads to the blast. There is no loitering; no stopping to make recognition of each other; they shuffle along, the most winterly objects of the scene, bearing on their fronts the tokens of the storm. Against every house, rock, or bank, the snow drift accumulates. It curls over the tops of walls and hedges in fantastic wildness, forming, often, the most perfect curves, resembling the scrolls of Ionic capitals, and showing beneath romantic caves and canopies.

The delights of the social hearth, on such evenings as these, when the wild winds are howling around our dwellings, dashing the snow, or hail, or splashing rain, against our windows, are a favorite theme with writers on the seasons. And truly it is an inspiring topic. All our ideas of comfort, of domestic affection, of social and literary enjoyment, are combined in the picture they draw of the winter fire-side. How often have those lines of Cowper been quoted, commencing,

Now stir the fire and close the shutters fast,
Let fall the curtain, wheel the sofa round,
And while the bubbling and loud-hissing urn
Throws up a steamy column, and the cups
Which cheer, but not inebriate, wait on each,
So let us welcome peaceful evening in.

Such is the *winter fire-side*—and we love to hear our writers speaking of its pleasures in strains of enthusiasm. But we may expand the picture. We may add to the zest of its personal and almost too selfish enjoyments, touches of generous and philanthropic sentiment, which will signally heighten its pleasures, and enlarge its power of improving the heart. How delightful, while sitting in the midst of our family or friendly group, in actual possession of the pleasures just enumerated, not only to contemplate our own happiness, but to send our thoughts abroad over the whole land! To think what thousands of families in this noble country, are at the same moment thus blessedly collected round the social flame. What hearths are lit up with all the charms of

kindred affection, of mature wisdom, and parental pride; of youthful gladness, gayety, and beauty. How many rural halls and city houses are shining like stars in their own places, in unabated warmth and splendor, though hid beneath the broad veil of wintry darkness. Then turn from the bright side of the picture to the dark one—to "the huts where poor men lie"—where the elegancies and amenities of life cast not their glow,

"But frosty winds blow in the drift"

upon shivering groups who have but little defence of fire or clothing from its bitterness. Where no light laugh rings through the room, or mirthful conversation circles amongst smiling faces and happy hearts, but the father, to use the language of Burns,

Ill satisfied keen nature's clamorous call,
Stretch'd on his straw, himself lays down to sleep,
While through the ragged roof and chinky wall,
Chill on his slumbers piles the drift heap.

Where the mother sees not her rosy and laughing children snugly consigned to their warm, soft beds, but contemplates, with a heart deadened with the miseries of to-day, and the fears of to-morrow, a sad little squallid crew around her, who, instead of pleasures and pastimes, know only wants and evils, which dwarf both body and soul. Where, perhaps, illness has superadded its aggravations, its pains, and languors, to a poverty which renders the comforts and indulgences of a sick room the most hopeless of all things. These are the speculations to enhance our fire-side pleasures, and to make those pleasures fruitful—linking our sympathies to the joys and sorrows of our kind, and arousing us to a course of active benevolence.

To proceed, however, to the varieties of wintry weather, this month, more than all others, shows us the **CONTINUED FROST**—a frost, that, day after day, and week after week, make a steady abode with us, till, in some instances, the beaten road becomes dusty as in summer. It every day penetrates deeper into the earth, and farther into our houses. Our windows, in the morning, are covered with a fine opaque frost work, resembling the leaves and branches of forest trees.

But of all the phenomena of winter, none equals in beauty the HOAR FROST. A dense haze most commonly sets in over night, which has vanished the next morning, and left a clear atmosphere, and a lofty arch of sky of the deepest and most transparent blue, beaming above a scene of enchanting beauty. Every tree, bush, twig, and blade of grass, from the utmost nakedness, has put on a pure and feathery garniture, which appears the work of enchantment, and has all the air and romantic novelty of a fairy land. Silence and purity are thrown over the earth as a mantle—the hedges are clothed as in a snowy foliage, thick as their summer array—the woods are filled with a silent splendor, the dark boles here and there contrasting strongly with the white and sparkling drapery of the boughs above, amongst which the wandering birds fly, scattering the rime around them in snowy showers. There is not a thicket but has assumed a momentary aspect of strange loveliness; and the mind is more affected by it from its suddenness of creation, and the consciousness of its speedy departure.

One of the things which is most deserving of our observation at this season is, the wisdom of Providence, displayed in the provision made for the preservation of all vegetable productions. Seeds are secure in the earth, or in the care of man; herbaceous plants have died down to the root, which, secure in their underground retreat, are preparing their fresh shoots, leaves, and flowers, in secret, to burst forth at spring with renewed splendor; but herbs and trees, which are exposed to all the severity of the open air, are not the less safe. Their buds are compactly defended by a strong coat of resinous matter, which may be abundantly seen in the horse chestnut at the time of its unfolding, and moreover by that *vis vite* which vegetables as well as animals possess. This last wonderful power imparted to plants by our beneficent Creator, has been most clearly shown by an experiment of the simplest kind; one which any person may repeat. A bud cut off in a sharp frost, and suspended from its parent tree during the night, will be found to be completely frozen through, while its fellows still upon

the tree will not be in the least injured. This will be the case even if the severed bud be enclosed in a glass, and perfectly defended from the external atmosphere. This property, by which buds, consisting of leaves firmly wrapped together, and within them the flowers, in fact all the richness and glory of the coming year, are preserved, cannot be sufficiently admired.

The Saxons termed this month *Aefter-yula*, or After-Christmas. The Greeks called it *Anthesterion*, or the Flowery, from the quantity of flowers used at the feast of Bacchus; but our present name is derived from the Latin, *Janus*, door-keeper of heaven, and God of peace. The name, therefore, indicates, that it is the gate of the year, and probably has reference to the earth in this month being in a state of quiet and inactivity.

EARTHQUAKES.

EARTHQUAKES IN SICILY AND IN THE TWO CALABRIAS.



Fissure near Polistena.

THESE earthquakes began on the 5th of February, 1783, and continued until the latter end of the May fol-

lowing, doing infinite damage, and exhibiting at Messina, in the parts of Sicily nearest to the continent, and in the two Calabrias, a variety of phenomena. The part of the Calabrian provinces most affected by this heavy calamity, lies between the thirty-eighth and thirty-ninth degree of latitude, being the extreme point of the continent; and the greatest force of the earthquakes was exerted at the foot of the particular mountains of the Apennines, named Monte Deio, Monte Sacro, and Monte Caulone, extending westward to the Tyrrhene sea. The towns, villages, and farm-houses nearest to these mountains, whether situated on the hills or in the plains, were totally ruined by the first shock, which happened about noon; and there the destruction of lives was the greatest. The towns still more remote were, however, greatly damaged by the subsequent shocks, particularly those of the 7th, 26th, and 28th of February, and that of the 1st of March. The earth was in a constant tremor, and its motions were various, being either vertical, horizontal, or oscillatory. This variety increased the apprehensions of the unfortunate inhabitants, who momentarily expected that the earth would open beneath their feet, and swallow them up. The rains had been continual and violent, often accompanied by lightning and furious blasts of wind. There were many openings and cracks in the earth; and several hills had been lowered, while others were quite level. In the plains, the chasms were so deep that many roads were rendered impassable. Huge mountains were severed, and portions of them driven into the valleys, which were thus filled up. The course of several rivers was changed, and many springs of water appeared in places which had before been perfectly dry.

In one place, near Laureano, two tracts of land, situated in a level valley, were transported to the distance of a mile, with all their trees and olives still standing; and volumes of hot water and sand issued from the ground where they formerly stood; and two others, on which a part of the city of Polistena was built, were moved nearly across a contiguous ravine to about half a mile from their former position, with some hundreds of houses on

them, and many of the inhabitants, several of whom were extricated from the ruins alive and unhurt!*

Near Seminara, a large olive ground was precipitated to a distance of two hundred feet into a valley sixty feet in depth, and this so compactly as to leave uninjured a house with its inhabitants that stood on it, and the olive trees continued to grow, and bore an abundant crop the same year in their new situation.

The permanent chasms or ravines caused by this earthquake were of great size; one in the district of Plaisano, was a mile long, 105 feet broad, and 30 feet deep; another three quarters of a mile long, 150 feet broad, and above 100 feet deep; another was no less than 225 feet deep; one gulf at Fosolano measured 300 feet square; and another, about 750 feet square, and about 30 feet deep. A mountain at the southern part of the peninsula was cloven for the length of nearly half a mile, the opening being of an irregular breadth of many feet.

From the city of Amantea, situated on the coast of the Tyrrhené sea, in lower Calabria, proceeding along the western coast to Cape Spartivento, in Upper Calabria, and thence along the eastern coast to Cape Alice, a part of Lower Calabria, on the Ionian sea, the towns and villages, amounting to nearly four hundred, whether on the coast or inland, were either totally destroyed, or suffered greatly. At Casal Nuovo, the Princess Gerace and upwards of four thousand of the inhabitants lost their lives. At Bagnara, the number of dead amounted to upwards of three thousand; and Radicina and Palmi experienced a similar loss. The total amount of the mortality occasioned by these earthquakes in Sicily and the two Calabrias, was, agreeably to the official returns, thirty-two thousand three hundred and sixty-seven; but Sir William

* Sir William Hamilton, who wrote the most complete account of this earthquake, and from whose paper in the *Philosophical Transactions* these events are copied, afterwards spoke to one of these survivors, who, with his maid-servant and wife, were extricated; the former unhurt, but the latter, as the man said, "a little so, but she was then nearly recovered." On Sir William's asking him the nature of the injury his wife had received, he said, "she had both her legs and one arm broken, and her skull so fractured that the brain was viable!"

Hamilton thought it still greater, and carries his estimate to forty thousand, including foreigners.



Circular Hollows in the Plains of Rosarno.

Along the sea-coast of the straits of Messina, near the classical rocks of Scylla, the huge masses detached from the lofty cliffs overwhelmed many villas; the water, as usual, was violently agitated, and showed that the subterranean motion was not less active beneath the bed of the sea than on shore. The prince of Scylla, an old man, on the occurrence of the first shock, observing the effects produced on the cliffs, on which his own castle and the houses of the town were situated, advised the inhabitants to get boats ready, and to assemble on the shore, to be ready to escape in them, if another shock should bring down the rock above them. They took his advice, and collected together on the shore accordingly. By the first shock, the sea had been raised and agitated so violently, that much damage had been done on the

point of the Faro of Messina; but here it acted with still greater violence; for, during the night, an immense wave, which was falsely represented to have been boiling hot, and to have scalded many persons on its rising to a great height, flowed furiously three miles inland, and swept off in its return two thousand four hundred and seventy-three of the inhabitants, with the prince at their head, who were either at that time on the strand, or in boats near the shore.

The shocks felt since the commencement of these formidable earthquakes amount to several hundreds; and among the most violent may be reckoned the one which happened on the 28th of March. It affected most of the higher part of Upper Calabria, and the inferior part of Lower Calabria, being equally tremendous with the first. Indeed, these shocks were the only ones sensibly felt in the capital, Naples. With relation to the former, two singular phenomena are recorded. At the distance of about three miles from the ruined city of Oppido, in Upper Calabria, was a hill having a sandy and clayey soil, nearly four hundred feet in height, and nearly nine hundred feet in circumference at its base. This hill is said to have been carried to the distance of about four miles from the spot where it stood, into a plain called *Campo di Bassano*. At the same time, the hill on which the city of Oppido stood, and which extended about three miles, divided into two parts; being situated between two rivers, its ruins filled up the valley, and stopped their course, forming two large lakes, which augmented daily.

Usefulness of Studies.—Studies are useful only as they tend to some practical purpose in life, and consolation in death. They should tend to the expansion and the government of our own minds, to the benefit and pleasure of our fellow-creatures, and entirely to the glory of God.

Experience gained.—Nothing instructs a man better than his own misfortunes; if he surmounts one, it will arm him against a thousand dangers.

NATURAL HISTORY.

THE WOLF.

THE essential character of the common wolf consists in, a straight tail; the hide of a greyish yellow, with a black oblique stripe on the fore-legs of those which are full grown; the eyes oblique. The average height of the wolf is about two feet six inches before, and two feet four inches behind; and the length of the body, from the tip of the muzzle to the beginning of the tail, three feet eight inches.

The wolf is peculiarly an inhabitant of Europe, and he still continues so in the more northern regions, and in those countries where dense forests are not yet cleared. They once abounded in England; and it is manifest that the terror which they produced was not a rare circumstance, but spread itself throughout all the land, and became a part of the habitual thoughts of the people. The month which corresponds with our January was at one period called by the Anglo-Saxons, "Wolf-monat;" and the reason for this is thus explained by an old writer on British antiquities. "The moneth which we now call January they called 'Wolf-monat,' to wit, Wolf moneth, because people are wont always in that moneth to be more in danger to be devoured of wolves, than in any season els of the year; for that, through the extremity of cold and snow, these ravenous creatures could not find of other beasts sufficient to feed upon."*

In the southern and temperate countries of Europe wolves are now rarely found. In severe winters they still make their appearance occasionally in France and Germany; several were seen in the forests near Boulogne, in 1818. In Spain, the dogs that watch the flocks wear spiked collars, to protect them from the occasional incursions of their enemy.

Wolves are, in those northern regions, very formidable

*Verstegan's "Restitution of decayed Intelligence in Antiquities concerning the most noble and renowned English Nation."—Antwerp, 1606.

creatures, sometimes measuring six feet from the muzzle to the end of the tail.* Their prevailing color is light, with a silvery, black stripe, extending from the upper part of the neck along the back. In the Zoological Appendix, by Mr. Sabine, to Captain Franklin's "Narrative of a Journey to the Shores of the Polar Sea," mention is made of a white wolf, whose length is four feet two inches; length of tail, nineteen inches; and height, two feet ten inches. Mr. Sabine considers it probable, that the loss of color in the white wolves, in the vicinity of the Arctic Seas, is occasioned by the severity of the winter season; though the change does not occur in all cases.



The Clouded Wolf; Canis nubilus, SAY.

A black wolf was taken in the Missouri territory, by a party engaged in Major Long's expedition from Pittsburgh to the Rocky Mountains; and Mr. Say, who accompanied that expedition, has described it under the name of *Canis nubilus*, or *Clouded Wolf*. In the Menagerie of the Tower of London, there is, at present, a

* Broke's Travels.

pair of wolves, taken in America, and presented by the Hudson's Bay Company, whose hair is of that mottled or clouded color, formed of various shades of black, gray, or white, which determined Mr. Say in his choice of a name for the variety.

These animals are larger and stronger than the common wolf; of a fierce aspect, but, in a considerable degree, without that peculiar expression—that sinister look of apprehension, united with ferocity—which usually characterizes the wolf species. Their tail is shorter than that of the common wolf, and their ears are remarkably short. These individual animals are extremely voracious; and their natural fierceness has not been in the slightest degree changed by confinement. The head of the American wolf, generally, is larger than that of the European; the muzzle is rounder; and his expression has less of that character which is expressed by the common word *slinking*.

During the arduous journeys of Captain Franklin to the shores of the Polar Sea, he and his companions were often obliged to dispute their scanty food with the prowling wolves of those inclement regions. On one occasion, when they had captured a moose-deer, and had buried a part of the body, the wolves absolutely dug it out from their very feet, and devoured it, while the weary men were sleeping. On another occasion, when the travellers had killed a deer, they saw, by the flashes of the Aurora Borealis, eight wolves waiting around for their share of the prey; and the intense howling of the ferocious animals, and the cracking of the ice by which they were surrounded, prevented them from sleeping, even if they had dared. But the wolves were sometimes caterers for the hungry wanderers in these dreary regions. When a group of wolves and a flight of crows were discovered, the travellers knew that there was a carcass to be divided; and they sometimes succeeded in obtaining a share of the prey, if it had been recently killed. Even the wolves have a fear of man; and they would fly before the little band, without attempting resistance. The following anecdote is full of interest:—"Dr. Richardson,

having the first watch, had gone to the summit of the hill, and remained seated, contemplating the river that washed the precipice under his feet, long after dusk had hid distant objects from his view. His thoughts were, perhaps, far distant from the surrounding scenery, when he was aroused by an indistinct noise behind him; and, on looking round, perceived that nine white wolves had ranged themselves in form of a crescent, and were advancing, apparently with the intention of driving him into the river. On his rising up they halted; and when he advanced, they made way for his passage down to the tents." This circumstance happened when the weather was sultry. The formation of a crescent is the mode generally adopted by a pack of wolves to prevent the escape of any animal which they chase.

The following passage, from the same interesting work, shows the extreme cunning of the wolves in the pursuit of a creature of superior speed:—"So much snow had fallen on the night of the 24th, that the track we intended to follow was completely covered; and our march to-day was very fatiguing. We passed the remains of two red deer, lying at the bases of perpendicular cliffs, from the summits of which they had probably been forced by the wolves. These voracious animals, who are inferior in speed to the moose, or red deer, are said frequently to have recourse to this expedient, in places where extensive plains are bounded by precipitous cliffs. Whilst the deer are quietly grazing, the wolves assemble in great numbers; and, forming a crescent, creep slowly towards the herd, so as not to alarm them much at first; but when they perceive that they have fairly hemmed in the unsuspecting creatures, and cut off their retreat across the plain, they move more quickly, and with hideous yells terrify their prey, and urge them to flight by the only open way, which is towards the precipice; appearing to know that, when the herd is once at full speed, it is easily driven over the cliff—the rear-most urging on those that are before. The wolves then descend at their leisure, and feast on the mangled carcasses."

Amongst the modes of catching or destroying wolves practised by rude nations, Pennant mentions that the Kirghese Cossacs (Tartars) take them by the help of a



large hawk called *Berkut*, which is trained to attack them, and will fasten on their head, and deliberately tear out their eyes.

THE STORMY PETREL.

Its great power of wing enables it to sweep over the ocean at every distance from land, and even to weather the most tempestuous winds, while, with its webbed feet and light form, it can actually walk upon the billows with as much ease as a sparrow can hop along a garden walk. "It is indeed an interesting sight," says Wilson, "to observe these little birds, in a gale, coursing over the waves, down the declivities, and up the ascents of the foaming surf that threatens to burst over their heads, sweeping along the hollow troughs of the sea as in a sheltered valley, and again mounting with the rising billow, and just above its surface, occasionally dropping their feet, which, striking the water, throw them up again with additional force, sometimes leaping, with both legs parallel, on the surface of the roughest waves for several

yards at a time. Meanwhile they continue coursing from side to side of the ship's wake, making excursions far and wide to the right and to the left, now a great way ahead, and now shooting astern for several hundred yards, returning again to the ship as if she were all the while stationary, though perhaps running at the rate of ten knots an hour. But the most singular peculiarity of this bird is its faculty of standing, and even running on the surface of the water, which it performs with apparent facility. When any greasy matter is thrown overboard, these birds instantly collect around it, facing to windward, with their long wings expanded and their webbed feet patting the water. The lightness of their bodies, and the action of the wind on their wings, enable them with ease to assume this position. In calm weather they perform the same manœuvre by keeping their wings just so much in action as to prevent their feet from sinking below the surface."



The Stormy Petrel (*Thalassidroma pelagica*, Vieuss.) Length, about six inches.

"There are," says the same writer in another place, "few persons who have crossed the Atlantic, that have not observed these solitary wanderers of the deep skimming along the surface of the wild and wasteful ocean; flitting past the vessel like swallows, or following in her wake, gleaning their scanty pittance of food from the rough and whirling surges. Habited in mourning, and

making their appearance generally in greater numbers previous to or during a storm, they have long been fearfully regarded by the ignorant and superstitious, not only as the foreboding messengers of tempests and dangers to the hapless mariner, but as wicked agents, connected somehow or other in creating them. 'Nobody,' say they, 'can tell anything of where they come from, or how they breed, though (as sailors sometimes say) it is supposed that they hatch their eggs under their wings as they sit on the water.' This mysterious uncertainty of their origin, and the circumstances above recited, have doubtless given rise to the opinion, so prevalent among this class of men, that they are in some way or other connected with the prince of the power of the air. In every country where they are known, their names have borne some affinity to this belief. They have been called witches, stormy petrels, the Devil's birds, and Mother Cary's chickens, probably from some celebrated ideal hag of that name; and their unexpected and numerous appearance has frequently thrown a momentary damp over the mind of the hardiest seamen. It is the business of the naturalist, and the glory of philosophy, to examine into the reality of these things; to dissipate the clouds of error and superstition wherever they darken and bewilder the human understanding, and to illustrate nature with the radiance of truth."

When we inquire, accordingly, into the unvarnished history of this ominous bird, we find that it is by no means peculiar in presaging storms, for many others of very different families are evidently endowed with an equally nice perception of a change in the atmosphere. Hence it is that, before rain, swallows are seen more eagerly hawking for flies, and ducks carefully trimming their feathers, and tossing up water over their backs, to try whether it will run off again without wetting them. But it would be as absurd to accuse the swallows and ducks on that account of being the cause of rain, as to impute a tempest to the spiteful malice of the poor petrels. Seamen ought rather to be thankful to them for the warning which their delicate feelings of aerial change enable them to give of an approaching hurricane.

"As well," says Wilson, "might they curse the midnight light-house, that, star like, guides them on their watery way; or the buoy that warns them of the sunken rocks below, as this harmless wanderer, whose manner informs them of the approach of the storm, and thereby enables them to prepare for it." The petrels are nocturnal birds. When, therefore, they are seen flying about and feeding by day, the fact appears to indicate that they have been driven from their usual quarters by a storm; and hence, perhaps, arose the association of the bird with the tempest. Though the petrels venture to wing their way over the wide ocean as fearlessly as our swallows do over a mill-pond, they are not, therefore, the less sensible to danger; and, as if feelingly aware of their own weakness, they make all haste to the nearest shelter. When they cannot then find an island or a rock to shield them from the blast, they fly towards the first ship they can descry, crowd into her wake, and even close under the stern, heedless, it would appear, of the rushing surge, so that they can keep the vessel between them and the unbroken sweep of the wind. It is not to be wondered at, in such cases, that their low wailing note of *weet, weet*, should add something supernatural to the roar of the waves and whistling of the wind, and infuse an ominous dread into minds prone to superstition.

The popular opinion among sailors, that the petrels carry their eggs under their wings in order to hatch them, is no less unfounded, than the fancy of their causing storms: it is, indeed, physically impossible. On the contrary, the petrels have been ascertained to breed on rocky shores, in numerous communities, like the bank-swallow, making their nests in the holes and cavities of the rocks above the sea, returning to feed their young only during the night, with the superabundant oily food from their stomachs. The quantity of this oily matter is so considerable, that, in the Faro Isles, they use petrels for candles, with no other preparation than drawing a wick through the body of the birds from the mouth to the rump. While nestling, they make a clattering or croaking noise, similar to frogs, which may be heard during

the whole night on the shores of the Bahama and Bermuda Islands, and the coasts of Cuba and Florida, where they abound. Forster says they bury themselves by thousands in holes under ground, where they rear their young and lodge at night; and at New Zealand, the shores resound with the noise, similar to the clucking of hens, or the croaking of frogs, (Pontoppidan, speaking of those of Norway, says like the neighing of a horse,) which they send forth from their concealment.

THE WASHINGTON EAGLE.



This bird is considered by Mr. Audubon as a new species, seldom or never seen, except in the Western states. It is probably, however, the great sea eagle described by Wilson,* and well known by naturalists in Europe and America. The male bird weighs from fourteen to fifteen pounds, and measures three feet seven inches in length, and ten feet two inches in extent.

* See page 12 of the present volume.



Condor attacking the Puma.

The eagle, among birds, sustains the same rank as does the lion among beasts. Its great strength, rapidity, and elevation of flight, added to its natural ferocity, and voracious disposition, have obtained for it the character of "king of birds," and confer upon it the power of inspiring terror into all its fellows of the air. By the Hebrews the eagle was called *בֶּשֶׂר*, VASHAR, the *lacerator*; and as this species of bird is eminent for rapacity, and *tearing their prey in pieces*, the propriety of the designation is sufficiently obvious.

Josephus and Pliny thought the ensign of the eagle peculiar to the Romans; in this however they were wrong, for the golden eagle with extended wings was borne by the Persian monarchs, from whom, it is probable, the Romans adopted it, as it was subsequently adopted from them by the United States and Napoleon; while the Persians themselves may have borrowed the symbol from the ancient Assyrians, in whose banners it moved till Babylon was conquered by Cyrus. This may serve to

explain why the expanded eagle is so frequently alluded to in the prophetic books of Scripture.

It is remarkable that Cyrus, compared in Isaiah xlii. 11. to an eagle, (so the word translated "ravenous bird" should be rendered,) is by Xenophon said to have had an eagle for his ensign—using, without knowing it, the identical word of the prophet, with only a Greek termination to it. So exact is the correspondence betwixt the prophet and the historian, the prediction and the event.

So far as size and appearance are concerned, as well as in power of flight, the eagle must yield the palm to the Condor* of America, while the head of the latter, "the likeness of a kingly crown has on." The condor, however, has not the honour of ranking among eagles, being evidently, both from structure and habits, nothing but a vulture.

THE MINERAL KINGDOM.

SILVER.

HAVING, in a former paper, given an account of the purest and most precious of metals, Gold, we now proceed to the description of that which most nearly resembles it in perfection and purity.

Masses of native silver have no determinate form, being found sometimes in small branches, occasionally in hair-like threads, and very frequently in leaves; in which form it is usually met with in the mines of Siberia, where it is said never to have been discovered in a state of crystallization. In the Peruvian mines, it is found in a form somewhat resembling fern-leaves; this figure is caused by a number of eight-sided crystals, so placed over each other as to give it a vegetable appearance. It sometimes assumes the form of round, rather crooked threads, varying from the thickness of a finger to that of a hair. It is rarely found in a state of purity, being frequently mixed with gold, mercury, copper, tin, iron, and lead.

Silver is sometimes found in combination with sulphur,

* The reader is referred to the 276th page of the third volume of the Repository, for a full and interesting account of this remarkable bird.

arsenic, and other substances: when mineralized by sulphur alone, it forms the vitreous silver ore, which assumes a great variety of colors; when united to sulphur and arsenic, the mass becomes the ruby-like ore, varying in color from deep red to dark gray, in proportion to the prevalence of either of these substances.

Silver is found both in the primitive and secondary earths, and is frequently imbedded in quartz, Jasper, hornstone, and chalk. It is chiefly met with in Sweden, Norway, and the polar latitudes: when it occurs in hot climates, it is generally amidst mountains covered with perpetual snows.

The richest and most important silver-mines in Europe are those of Königsberg in Norway; they are situated in a mountainous district, and divided into superior and inferior, according to their relative position; the beds in which the silver is found run from north to south. These mines are of considerable depth, and enormous masses of native silver are said to have been found in them.

The French mines are not so remarkable for the richness of their silver-ore as for the other minerals they contain. That of Allemont, ten leagues from Grenoble, is one of the principal; it is situated at the height of nearly three thousand yards above the level of the sea: the veins near the surface were the richest in silver. This mine is now abandoned.

The most celebrated of the Spanish silver-mines is that of Guadalcanal in Andalusia, situated in the Sierra Morena, a few miles to the north-east of the quicksilver-mine of Almaden: it was well known to the Romans, and formerly very productive. This mine furnishes the ruby-ore.

Silver, however, is most abundant in the centre of the Andes; for here we find the celebrated mountain of Potosi: it is of immense height, and said to be penetrated with veins in every direction: when first discovered in 1545, the veins were nearly all of pure silver; latterly, however, little more than five drachms were obtained from one hundred weight of ore. In the space of ninety-three years from its discovery, the number of ounces of

silver extracted from this mountain is calculated to have been no less than four hundred millions.

Among the American mines, those of Mexico must not be forgotten; that of Valenciana, in the district of Guanaxuato, is one of the richest: the vein traverses a slaty mountain, and abounds with silver, both native and mineralized. The mine is of great depth, and is supposed to contain a greater quantity of silver than all the other mines of that country.

Silver possesses all the properties of other perfect metals: it is fixed and unalterable in the fire of an ordinary furnace, but may be volatilized, being sometimes found in the soot of chimneys where large quantities are melted. When exposed to the focus of a large burning glass, it evaporates in a fume, which rises to the height of five or six inches, and will completely silver a plate of metal.

With the exception of gold, silver is the most ductile of all metals; a single grain may be extended into a plate of one hundred and twenty-six inches long, and half an inch broad: if reduced into leaves under the gold-beater's hammer, it is capable of still further extension: its tenacity, however, bears no proportion to its ductility, being less than even that of iron or copper. A silver-wire, one tenth of an inch thick, will scarcely bear a weight of two hundred and seventy pounds, while a gold-wire of the same thickness will support nearly double that weight.

THE VEGETABLE KINGDOM.

VEGETABLE TITAN.

(*Rafflesia Arnoldi*, or *Krubul*.)

THIS gigantic flower was discovered in Sumatra, in 1818, when Sir STAMFORD RAFFLES, then governor of that island, made his first journey from Bencoolen into the interior. In that journey he was accompanied by a naturalist of great zeal and acquirements, the late Dr. JOSEPH ARNOLD, a member of the Linnean So-

ciety, from whose researches, aided by the friendship and influence of the governor, in an island so favourably situated and so imperfectly known as Sumatra, the greatest expectations had been formed. But these expectations were never to be realized, for the same letter which gave the account of the gigantic flower, brought also the intelligence of Dr. Arnold's death. This letter was one from Sir Stamford Raffles to Sir Joseph Banks, and in it he enclosed the following extract, written by the lamented Arnold to some unknown friend, (for the epistle was left unfinished,) in which he gives an account of the discovery of this, which Sir Stamford Raffles well denominated—"most magnificent flower."

After describing the previous route, Arnold says: "At Pulo Lebban, on the Manna River, I rejoice to tell you, I met with what I consider the greatest prodigy of the vegetable world. I had ventured some way before the party, when one of the Malay servants came running to me with wonder in his eyes, and said, '*Come with me, sir, come! a flower very large, beautiful, wonderful!*' I went with the man about a hundred yards into the jungle, and he pointed to a flower growing close to the ground, under the bushes, which was truly astonishing. My first impulse was to cut it up and carry it to the hut: I therefore seized the Malay's parang, (a sort of instrument like a woodman's chopping-hook,) and finding that it sprang from a small root, which ran horizontally, (about as large as two fingers, I soon detached it, and removed it to our hut. To tell you the truth, had I been alone, and had there been no witnesses, I should, I think, have been fearful of mentioning the dimensions of this flower, so much does it exceed every flower I have ever seen or heard of; but I had Sir Stamford and Lady Raffles with me, and Mr. Palsgrave, who, though equally astonished with myself, yet are able to testify as to the truth.

"The whole flower was of a very thick substance; the petals and nectary being in few places less than a quarter of an inch thick, and in some places three quarters of an inch; the substance of it was very succulent. When I first saw it, a swarm of flies were hovering over the

mouth of the nectary, and apparently laying their eggs in the substance of it. It had precisely the smell of tainted beef.



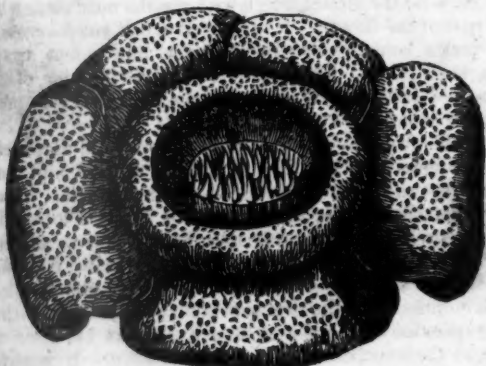
Rafflesia Arnoldi.

" Now for the dimensions, which are the most astonishing part of the flower. It measured a full yard across; the petals being twelve inches high, and a foot apart from each other. The nectarium, in the opinion of us all, would hold twelve pints; and the weight of this prodigy we calculated to be fifteen pounds!"

A guide from the interior of the country said that such flowers were rare, but that he had seen several, and that the natives call them *Krâbûl*. Later information, however, has shown that the *Krâbûl*, or Great Flower, is much more generally known than its first European discoverers suspected. In some districts it is called *Krâbûl*, and in others simply *Ambun Ambun*. It is said to take three months, from the first appearance of the bud, to the full expansion of the flower, and it appears but once a year, at the conclusion of the rainy season. It has no stem of its own, but grows on the roots and stems of a woody species of *cissus*, (*Cissus angustifolia*.) Upon this plant the *Krâbûl* seems to take its origin in some

crack or hollow of the stem, and soon shows itself in the form of a round knob, which, when cut through, exhibits the infant flower enveloped in numerous sheaths; these open and wither away as the flower enlarges, until at the time of its fulness, but very few remain. The blossoms rot away not long after their expansion, and the seeds (*sporæ*) are raised with the pulpy mass.

This giant flower may well be esteemed the wonder of the vegetable world; and although several others, similar to it in form and habits, have been found, none have as yet been discovered that equal it in size. A small species has been mentioned by Dr. Horsfield; but his flower, instead of measuring *three feet across*, only measured three inches. A second very magnificent species, measuring two feet across, has been discovered in a small island near Java, called *Nusa Kambangan*, which has been described and figured by Blume, in his *Flora Java*, and from this work our second and third figures have been taken. By the natives it is called *Patma*, and hence the botanical name proposed is *Rafflesia Patma*, (see Fig. 2.) Another of these vegetable paradoxes,



Rafflesia Patma.

figured also by Blume, is a native of the province of Buitenzorg, in the western parts of Java, and grows at the

height of from 1200 to 1500 feet above the level of the sea. It has been called *Brugmansia Zippelii*, (Vide Fig. 3.)



Brugmansia Zippelii.

All these curious plants agree in several circumstances. In the first place, they have no proper roots of their own, and derive their nourishment from the vegetables on which they grow. In the second place, they have no stems, the flowers being seated on the vines that support them. Thirdly, they are destitute of leaves, the flowers being enclosed only by scales, which are purplish, or brownish, and resemble the outer coverings of buds, or rather the chaffy scales of other clinging plants; for, deriving their nourishment through the leaves of another vegetable, they do not require leaves of their own. So that here we have plants consisting of flower only, neither root, stem, nor leaves being present. And what is still more curious is, that, although the largest and most magnificent flowers in the world, they have very little in common with other flowering plants. They have no proper seeds, but are multiplied by *spores*, similar to the spawn of mushrooms, to which, indeed, their general form bears very great resemblance. The flower-leaves are of a mushroom-like substance, and smell like *tainted beef*; they contain no hollow vessels, like most other

flowering plants, but consist of cells alone, like the mushroom-tribe, and they arise from beneath the bark of the cissus, which becomes enlarged by their growth, and very much resembles that false covering which some of that tribe have which grow upon living plants; raising the outer surface into tumors, and bursting it as they become more fully grown, such as the blights and blasts of corn, and so forth. Hence these stupendous flowers, which are six to nine feet in circumference, show their likeness to the most lowly of the mushroom tribes, some of which are so minute as scarcely to be visible to the naked eye.

ILLUSTRATIONS OF NATURAL PHENOMENA.

THE TIDES.

EVERY body knows how useful the Tides are. Upon the sea-coast we constantly see a number of ships, all waiting at anchor for some hours, while the crews are able to take their rest. We keep looking at them, and, at a certain time, without any change of wind having taken place, we see them all busy setting their sails and weighing anchor, and, in a few hours more, they are all out of sight: they were, in fact, waiting *for the change of the tide*. If the wind was unfavorable, they could never make head against it, as long as the tide was against them too; but with the tide in their favor, they can pursue their voyage, even against an unfavorable wind.

In rivers, the use of the tides is seen still more plainly. The tide brings not only a *current*, but a whole supply of *water* every twelve hours; and the continual change, which can be quite calculated upon, is just as useful as having a wind constantly fair up and down a river, alternately, for a certain number of hours every day.

Besides the immense importance of the tides to navigation, no one can calculate how conducive they are to health and cleanliness. Such a river as the Thames is thoroughly washed out, twice a day, by a current, carrying with it, towards the sea, all the drainage of a population of a million and a half of people, and as often bring-

ing up clear water and fresh air. It is a system of lungs, breathing regularly twice in about twenty-four hours.

Hundreds of people are deriving benefits from this beautiful arrangement of Providence, without thinking at all about it; and many others are contented to see such changes happen, without trying to comprehend how they are brought about. Now it is certain, that the more we study the works of Nature, the clearer proof we find of the wisdom of God who contrived them all; and the tides are a very remarkable instance of a vast variety of beneficial effects arising from one simple cause.

We shall endeavor to show how the tides are produced: and we hope none of our readers will be prevented from trying to understand the explanation, under the notion that it is too difficult to be comprehended without previous study: we promise them that the subject requires only ordinary attention, and plain common sense, and that it will well repay the trouble of attending to it.

It is soon seen that the tides are in some way occasioned by the moon; for the time of high and low water comes back to the same hour whenever the moon is at the same age.

The *height* of the tide on different days plainly depends also upon the *age* of the moon. The highest tides are always found about the time of new and full moon, and the lowest when the moon is in her quarters.

What is to be explained then is, why the waters should rise and fall *twice* in rather more than twenty-four hours, and how this fluctuation is connected with the position of the moon. For this purpose, we will first see what the effect of the moon would be, if the whole earth were covered with water, and we shall afterwards easily discover what changes will be made, when we consider the actual condition of the globe made up of land and water.

TIDES OF AN OPEN OCEAN.

It is well known that the moon is a solid body, which goes round the earth every month, in a direction from West to East, and, from the real motion of the earth on its axis, *appears* to move round from East to West every

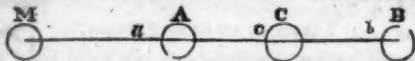
day. Supposing, then, *m* to be the moon, and *c* the centre of the earth, there is some point, *A*, upon the surface of the earth, which is nearest to the moon, and another point, *B*, exactly opposite, which is furthest from the moon. Now



every solid body, such as the moon, is found to *draw towards* it any other body, by a force which is called *gravitation*, and is really the same force by which a stone falls to the ground; and this force is the *greater*, the *nearer* the attracted body is to that which attracts; thus *A* would be attracted by *m* more than *c* is, and *c* would be more attracted by *m* than *B* is. If these three particles, *A*, *c*, and *B*, were quite at liberty to move towards *m* at the end of any time, as a minute, *A* would have moved towards *m* through a greater space than *c* had, and *c* through a greater space than *B* had; hence *A* would be further from *c*, and *c* further from *B*, than each was at first. And if the motion of *B* be regarded only with reference to the point *c*, *considered as at rest*, the effect would be the same as if it were really drawn *away* from *c*, by the attraction of some other body (*m*) exactly opposite to *m*.*

If, then, *A c B* were a sphere of *water*, a particle at *A* or at *B* would be lifted a little above its ordinary level,

* It may appear somewhat strange to those who have not thought before about the matter, that an attraction towards *m* should cause a rise of the waters in the part *opposite* to *m*; and it may be worth while to explain the principle upon which it depends a little more clearly. Suppose then *A c B* to be three equal small balls of iron, floating on pieces of cork, and one foot asunder; then suppose a powerful magnet to be applied at *m*, which draws *A* through three inches, *c* through two inches, and *B* through one inch; if the bodies



be then stopped, as at *a c b*, it is plain that the distance of *a* from *c* is now one foot two inches, and the distance of *b* from *c* is one foot only, instead of one foot. The effect, therefore, of the attraction of *m* has been to separate the two bodies, *a* and *c*, as well as *A* and *c*,

reckoned from *c*, and all the water near *A* and *B* would also be lifted, but in a less degree; hence the form of the globe would be altered; it would no longer be a perfect sphere, but would take an egg-like shape, the two little ends pointing towards *M*, and in the opposite direction; that is, there would be a *high water* at *A* and *B*; but at such a point as *E*, in the circumference *AEB*, half way between *A* and *B*, the height of the water would certainly not be raised by the attraction of *M*, and it can be readily shown, that it would be rather lowered, and there would be there a *low water*.



Now suppose this watery globe to turn round upon an axis, *Ff*, at right angles to the plane *B E A*, it is plain that, for any place in the circumference *B E A*, there would be two *high waters* in each revolution, one when it comes to *A*, the other at *B*; and two *low waters*, one at *E*, the other at a point exactly opposite to *E*.

For every point as *a* on the globe, between *A* and *F*, there would also be a high and low water twice in every revolution, but not *so* high nor *so* low, as for a point in the circumference *A E B*, in the plane of which *M* lies.

If the earth, then, were a globe of water, there would be a high water nearly at the time of the moon's southing, or coming to the meridian of any place, and a low water at about six hours after that time. Since the moon, in consequence of its own motion round the earth, comes to the meridian of a place about forty minutes later every day, the *times* of high water would also be so much later.

Such is the sort of tides which would take place upon a globe totally covered with water. We shall see, on another occasion, what changes are introduced in the tides,

upon a globe which has a surface partly of land and partly of water.

NEEDLE ROCKS, ISLE OF WIGHT.



THE above cut represents very exactly the Needles as they are termed of the Isle of Wight. They are situated upon the west side of the Island, the whole of which is fenced in with sharp rocks of the same character as those above; but these needles are the most remarkable.

The Isle of Wight is situated on the southern coast of Hampshire, and is separated from it by a narrow channel. It is about twenty-one miles long and thirteen broad, and is divided into nearly equal parts by the river Cowes,

which at its southern angle enters into the channel opposite the mouth of South Hampton bay. The south coast is bordered with very steep cliffs of chalk or freestone, hollowed in many parts into curious caverns and subterraneous grottoes. A ridge of hills runs across the island from east to west, forming a tract of fine pastures, which afford grazing to sheep. The air in this island is soft and balmy; the land is extremely fertile; while the landscape presents a rich and varied series of interesting views. England owes much of her reputation for fine glass to the fine white crystalline sand which is found in abundance in this island.—*Family Mag.*

"I CANNOT FORGET WITH WHAT FERVID DEVOTION."

I CANNOT forget with what fervid devotion
I worshipped the visions of verse and of fame:
Each gaze at the glories of earth, sky, and ocean,
To my kindled emotions, was wind over flame.

And deep were my musings in life's early blossom,
'Mid the twilight of mountain groves wandering long;
How thrilled my young veins, and how throbbed my full bosom,
When o'er me descended the spirit of song.

'Mong the deep-cloven fells that for ages had listened
To the rush of the pebble-paved river between,
Where the king-fisher screamed and gray precipice glistened,
All breathless with awe have I gazed on the scene;

Till I felt the dark power, o'er my reveries stealing,
From his throne in the depth of that stern solitude,
And he-breathed through my lips, in that tempest of feeling,
Strains warm with his spirit, though artless and rude.

Bright visions! I mixed with the world and ye faded;
No longer your pure rural worshipper now;
In the haunts your continual presence pervaded,
Ye shrink from the signet of care on my brow.

In the old mossy groves on the breast of the mountain,
In deep lonely glens where the waters complain,
By the shade of the rock, by the gush of the fountain,
I seek your loved footsteps, but seek them in vain.

Oh, leave not, forlorn and forever forsaken,
Your pupil and victim, to life and its tears!
But sometimes return, and in mercy awaken
The glories ye showed to his earlier years.—*Bryant.*

FRIENDSHIP, LOVE, AND TRUTH.

When Friendship, Love, and Truth abound,
 Among a band of brothers,
 The cup of joy goes gayly round,
 Each shares the bliss of others.
 Sweet roses grace the thorny way
 Along this vale of sorrow;
 The flowers that shed their leaves to-day
 Shall bloom again to-morrow.
 How grand in age, how fair in youth,
 Are holy Friendship, Love, and Truth !

On halcyon wings our moments pass,
 Life's cruel cares beguiling;
 Old Time lays down his scythe and glass,
 In gay good-humour smiling;
 With ermine beard and forelock gray
 His reverend front adorning,
 He looks like Winter turn'd to May,
 Night softened into morning.
 How grand in age, how fair in youth,
 Are holy Friendship, Love, and Truth !

From these delightful fountains flow
 Ambrosial rills of pleasure :
 Can man desire, can heaven bestow
 A more resplendent treasure ?
 Adorn'd with gems so richly bright,
 We'll form a constellation,
 Where every star, with modest light,
 Shall gild his proper station.
 How grand in age, how fair in youth,
 Are holy Friendship, Love, and Truth !

MONTGOMERY.

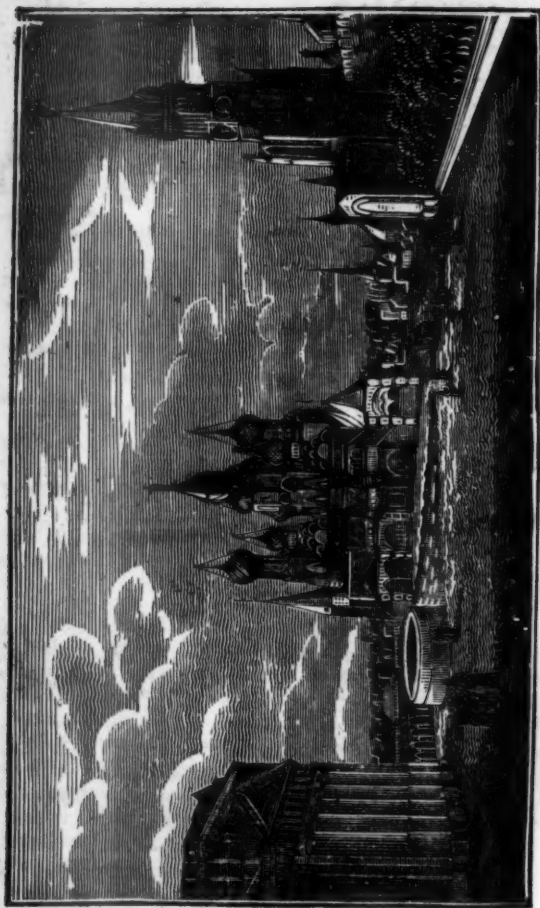
Perhaps that is nearly the perfection of good writing, which is original, but whose truth alone prevents the reader from suspecting that it is so: and which effects that for knowledge which the lens effects for the sun-beam, when it condenses its brightness in order to increase its force.—COLTON'S LACON.

The only humanity which, in the great affairs of men, claims their respect, is that manly and expanded humanity which fixes its steady eye on the object of general happiness.—SIR J. MACKINTOSH.

The highest perfection of human reason is to know that there is an infinity of truth beyond its reach.—PASCAL.

LIBRARY OF THE MUSEUM OF NATURAL HISTORY





VIEW IN THE KREMLIN AT MOSCOW.